Epidemiology Of Diarrheal Diseases in Children Below 5 Years in Wassit Province

Aseel H. Shemal*

!!

الخلاصه

ان الهدف من هذه الدراسه هو معرفه العوامل المتعلقه بوبائيات مرض الاسهال عند الاطفال دون الخامسه من العمر في مدينه الكوت، محافظه واسط وذلك اعتمادا على خصائص معينه تشمل العمر الجنس،السكن، نوع الرضاعه ، نوع الماء المستعمل للشرب والمستوى الدراسي للوالدين .

اظهرت نتائج الدراسه ان هناك زياده في حالات الاسهال عند الاطفال الذين يعتمدون على مياه الاساله في الشرب والذين ينتمون الى ام واب غير متعلمين، وان غالبيه الاصابات هي مابين عمر 1-2 سنه وعند الاطفال الذين يعتمدون على الرضاعه الاصطناعيه.

لايوجد فرق في معدل الاصابه بالاسهال بين الاطفال الذكور والاناث.

Abstract

Diarrheal diseases are major causes of morbidity and mortality among children in developing countries. We have analyzed distribution of diarrhea in children under five years of age who resided in rural or urban environments but attended Al_Karama hospital in Al_Kut city in Wassit. In this study we have found that diarrheal disease is more common in family that their parents illiterate, there is a peak incidence at1-2 years old. The disease more in infant who use bottle feeding than in those who feed on breast of their mothers and those with mixed type of feeding.The incidence of the disease is greater in children whose mothers use tap water for feeding. As for the Residence of the parents of these children, the occurrence of the condition is nearly equal between urban and rural regions.There is no significant difference between male and female.

Conclusion: During this study, important environmental risk factors were recognized. Endangered groups and mothers with children under 5 years old should be aware of these risk factors in order to prevent their children's diseases. Prevention of acute diarrhea in children can reduce massive detriments to health system.

*Medical College- Wassit University

Introduction

Diarrhea remains a major health issue in developing countries, with high morbidity and mortality rates. (1)

Causes of diarrhea in areas of endemicity include a wide variety of bacteria, viruses, and protozoa. Poor food hygiene, water, and sanitation are common in communities with high levels of diarrheal disease. Underlying conditions, such as malnutrition, which modify the risk of contracting diarrhea, are also common.Diarrheal diseases remain a leading cause of preventable death, especially among children under five in developing countries. (2)(3)(4).

Diarrhoea is the passage of loose or liquid stools more frequently than is normal for the individual. It is primarily a symptom of gastrointestinal infection. Depending on the type of infection, the diarrhoea may be watery (for example in cholera) or passed with blood (in dysentery for example). Acute diarrhea remains as one of the most prevalent diseases affecting young children in developing countries in spite of the growing knowledge achieved in recent years. Even though programs sponsored by World Health Organization (WHO) and other improvements on the quality of life of several populations have succeeded in decreasing mortality rates, the incidence of diarrhea in children younger than five years in developing countries remains high, at 3.2 cases per child per year(5-6), but rates can be as high as 11 episodes of diarrhea per child per year in extremely poor areas(7) At the end of 20^{th} century, 2.5 million deaths are estimated to have occurred worldwide each year, making diarrhea responsible for 21% of deaths of children younger than five years old (6).

Severe diarrhoea may be life threatening due to fluid and electrolytes loss in watery diarrhoea, particularly in infants and young children, the malnourished and people with impaired immunity. The impact of repeated or persistent diarrhoea on nutrition and the effect of malnutrition on susceptibility to infectious diarrhoea can be linked in a vicious cycle amongst children, especially in developing countries. Generally, in developing countries the probability of diarrhea, infection is estimated that for each child would be at least 3.2 times a year. This statistics in some developing countries with a lower level of health condition is increases up to 9 cases (8).

Methodology

An epidemiological study (Cross sectional) was done on diarrheal disease in children below 5 years. The samples were selected from outpatients attending Al_Karama Hospital. A total number of 103 cases were included in this study, 54 male and 49 female, the mothers of these children were asked several questions and data were collected including: Age : up to five years ,Sex : Male or Femal,Residence : whether urban or rural ,Feeding : whether

breast or bottle feeding,Water used in addition to feeding : whether tap water, river water or filtered water, Occupation of parents. The period of the study extended from the 1st of march 2009 to the 15th of April 2010.

Public health significance of diarrheal illness: This is estimated by assessment of: Morbidity,Mortality, The long-term consequences of diarrheal diseases ,Preventive strategies.

Results and Discussion

Table 1: Shows the distribution of study group according to residence.{The occurrence of the disease is almost equal between urbun and rural area.Although inappropriate environmental condition and weak economical status are the important risk factors of acute diarrhea.(11) }

Table 1: Distribution of the study group by residence

Residence	Frequency	Percentage
Urbun	51	49.5
Rural	52	50.5
Total	103	100

Table 2:represent the distribution group according to mothers employment.{Almost all mothers of affected children are not employed and has less contact with government departments ,this makes them have little health education in maternal and child care. Educated mother will know the illness symptoms , how to use the ORS , how to use the prescribed drugs ,how to use clean water and when to go to health center.(15)}

Table 2: distribution of the study group by mother's employment.

Mother's employment	Frequency	Percentage
Employed	1	0.98
Not employed	102	99.02
Total	103	100

Table 3:shows the type of feeding used by diseased children. {Concerning the type of feeding, there is high occurrence of the disease in children who use bottle feeding much more than those who feed on breast of their mothers and those with mixed type of feeding. Mother's milk ingestion until six months of age is one of the findings of recent study, which is verified by various studies. This finding depend on presence of immuno-globulin and anti-chores in mother's milk that actively prevent this disease (9-10).}

Table 3: distribution of the study group according to type of feeding.

Type of feeding	Frequency	Percentage
Breast feeding	30	29.1
Bottle feeding	62	60.2
Mixed	11	10.7
Total	103	100

Table 4: shows the type of water used by children with diarrhea.{Regarding this, the incidence of the disease is greater in children whose mothers use tap water for feeding than those who use river or filtered water which brings us to conclude that either the tap water in these areas, in which the disease occur, inadequately purified or it's just a coincidence that most of these children use tap water . Various studies, which were conducted in this field, all emphasis on impact of unsanitary and plumbing water on diarrhea and use of sanitary and packing water, can prevent this disease (12, 13,14).}

Table 4: distribution of the study group by type of water.

Type of water	Frequency	Percentage
Tap. Water	72	69.9
Filtre water	21	20.4
River water	10	9.7
Total	103	100

Table 5: Shows the gender of the studied group. {The incidence of diarrheal disease in children below 5 years is almost equal in both sexes .So there is no significant difference between male and female in the affected group by diarrhea.}

Table 5: distribution of the study group by gender.

Sex	Frequency	Percentage
Male	54	52.4
Female	49	47.6
Total	103	100

Table 6 :shows the distribution of diarrheal disease by age of children. {Among 103 cases , the rate of the disease is increasing with age, reaching peak incidence at age group (1-2 years) then decreasing back in later age groups , this result probably due to stopping the breast feeding and change to bottle feeding or due to giving the child the supplementary food during this period of age.}

Table 6: distribution of the study group by age group.

Age group	Frequecy	percentage
< 6 months	9	8.73
6 - 12 months	26	25.24
1 - 2 years	34	33.009
2 - 3 years	15	14.56
3 - 4 years	14	13.59
4-5 years	5	4.85

Table 7: Shows distribution of the sample according to Residence vs Water supply.{We noticed that people who live in urbun area depend in there water supply mainly on tap water but people live in rural area have less water purification stations.}

Table 7: distribution of the study group by residence vs water supply.

Residence	Water			Total
	Tap water	Filter	River	
Urban	44	14	0	58
Rural	36	7	2	45
Total	80	21	2	103

Table8: Shows the distribution of the study group according to residence vs feeding.{We see that most of people in rural area depend on breast feeding , this may be related to some traditions in the area.But the use of bottle feeding still high in both .}

Table 8: distribution of the study group according to residence vs feeding.

Residence	Feeding			Total
	Breast	Bottle	Mix	
Urban	12	34	5	51
Rural	15	30	7	52
Total	27	64	12	103

Conclusion

During this study, important environmental risk factors were recognized,like age, gender , type of feeding , type of water , residence , mothers employment . Endangered groups and mothers with children under 5 years old should be aware of these risk factors in order to prevent their children's diseases. Prevention of acute diarrhea in children can reduce massive detriments to health system.

Recommendations

Access to safe drinking water. (Inform local health authority for contamination of tap water)
Improved sanitation.
Good personal and food hygiene.
Health education about how infections spread.

References

1-Maria Clotildes N. de Melo[I]; José A.A.C. Taddei[II]; Daniel R. Diniz-Santos[I]; Camilo Vieira[I]; Nadya B. Carneiro[I]; Rita Franca Melo[I]; Luciana R. Silva[I].Incidence of diarrhea in children living in urban slums in Salvador, Brazil. Braz J Infect Dis .2008 ; vol.12 no.1 Salvador Feb.

2- Bhatnagar S, Bhan M K, Sommerfelt H, Sazawal S, Kumar R, Saini S. Enteroaggregative Escherichia coli may be a new pathogen causing acute and persisitent diarrhea. Scand J Infect Dis. 1993;**25**:579–583.

3-Levine M M, Losonsky G, Herrington D, Kaper J B, Tacket C, Rennels M B, Morris J G. Pediatric diarrhea: the challenge of prevention. Pediatr Infect Dis. 1986;5(Suppl.):29–43.

4-Mata L, Guerrant R L. Magnitude and impact of diarrhoeal disease. Baillière's Clin Trop Med Commun Dis. 1988;3:435–445.

5. Snyder J.D., Merson M.H. The magnitude of the global problem of acute diarrheal disease: a review of active surveillance data. Bull World Health Organ 1982;60:605-13.

6. Kosek M., Bern C., Guerrant R.L. The global burden of diarrheal disease, as estimated from studies published between 1992 and 2000. Bull World Health Organ. 2003;81:197-204.

7. Guerrant R.L., Kirchhoff V., Shields D.S., et al. Prospective study of diarrhoeal illnesses in northeastern Brazil: patterns of disease, nutritional impact, etiologies and risk factors. J Infect Dis. 1983;148:986-97.

8-Bhan MK, Bhandari N, Sazawal S, et al. Descriptive epidemiology of persistent diarrhea a mony gyung children in rural northern. WHO. Available from: www.google.com. (1992).

9-Effect of breastfeeding on infant and child mortality due to infectious diseases in less developed countries: a pooled analysis. WHO Collaborative Study Team on the Role of Breastfeeding on the Prevention of Infant Mortality. Lancet. 2000; 355(9202):451-55.

10-Safar M.j. Acute diarrhea and how to manage it. Mazandaran University of medical sciences. 2000; 10(28):58-74

11-Vanderlei LC, da Silva GA, Braga JU. Risk factors for hospitalization due to acute diarrhea in children under two years old: a case-control study. Cad Saude Publica. 2003; 19(2):455-63

12-Sodemann M, Jakobsen MS, Molbak K, Martins C, Aaby P Management of childhood diarrhea and use of oral rehydration salts in a suburban West African community.Am J Trop Med Hyg. 1999; 60(1):167-71.
13-Kofoed PE, Rodrigues A, Dias F, Aaby P, Svennerholm AM Breast milk reduces the risk of illness in children of mothers with cholera: observations from an epidemic of cholera in Guinea-Bissau. Pediatr Infect Dis J. 2006; 25(12): 1163-66.
14-Shams H, Motallebi M, Mashki M. Educational needs of the mothers and acute diarrhea of children under 5-years in Gonabad city. Gonabad University of Medical Sciences 2005; 55-6.